

# Bimetal Thermometer, Every Angle

TBiGelCh

Bayonet ring case stainless steel, turnable and adjustable

## Standard Versions

This data sheet contains detailed information on our standard versions and available options. In overview 8000 you will find additional information on selection, metrological features, permissible ambient and storage temperatures as well as error limits, etc. Information on the metrologically optimal design of thermometers can be found in our technical information sheet T08-000-031.

### Measuring Unit

Bimetal coil

### Accuracy (DIN EN 13 190)

Class 1

### Case

With bayonet ring, stainless steel 1.4301 (304)

### Degree of Protection (DIN EN 60 529/IEC 529)

IP 65

### Nominal Case Sizes

63, 100, 160 mm (2½, 4, 6")

### Case Configuration

Connection temperature sensor (stem): pivot (every angle)

Stem position: centre back position,  
compared to case approx. 135° adjustable  
and 360° turnable

Mounting device: without

### Temperature Ranges (DIN EN 13 190)

Temperature differences from 60 K up to 600 K

### Temperature Sensor (Stem)

Made of stainless steel 1.4571 (316Ti)

Max. static operating pressure: 25 bar

Stem models: B1, B3, B4, B4.1, B5 or B6

Stem Ø dF: 6 or 8 mm

Stem length L: from Lmin or L1min up to max. 400 mm

Please regard the minimum stem length depending on active length (La) and stem model, see page 3

### Window

Instrument glass

### Dial

Aluminum white, scale black

### Pointer

Adjustable pointer aluminum black

### Indication Adjustment (±4 %)

Externally via screw



## Ordering Information, Standard Ranges, Options

See page 4

## Special Versions and Further Options

- Other connection threads and materials upon request
- Other temperature ranges and/or special scales, e.g. dual scale °C/°F, coloured fields or ranges, dial inscriptions
- Case parts stainless steel 1.4404 (316L) upon request
- For ambient temperatures to –60 °C upon request  
For ambient temperatures below –20 °C we recommend:  
thermometer with crimped-on ring case models TBiGelChg or TBiGelChgG
- GOST version for Russia, Ukraine, Kazakhstan

## Thermowells

See data sheets 8.8110 ff.



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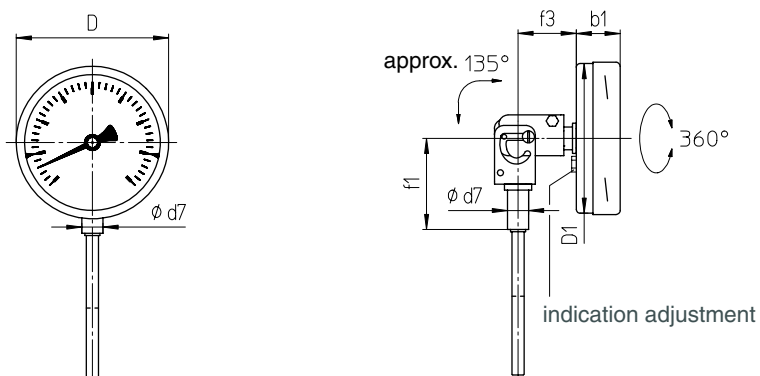
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## Stem Position, Dimensional Data and Weights

### Centre Back Stem Position, with Pivot (Every Angle)

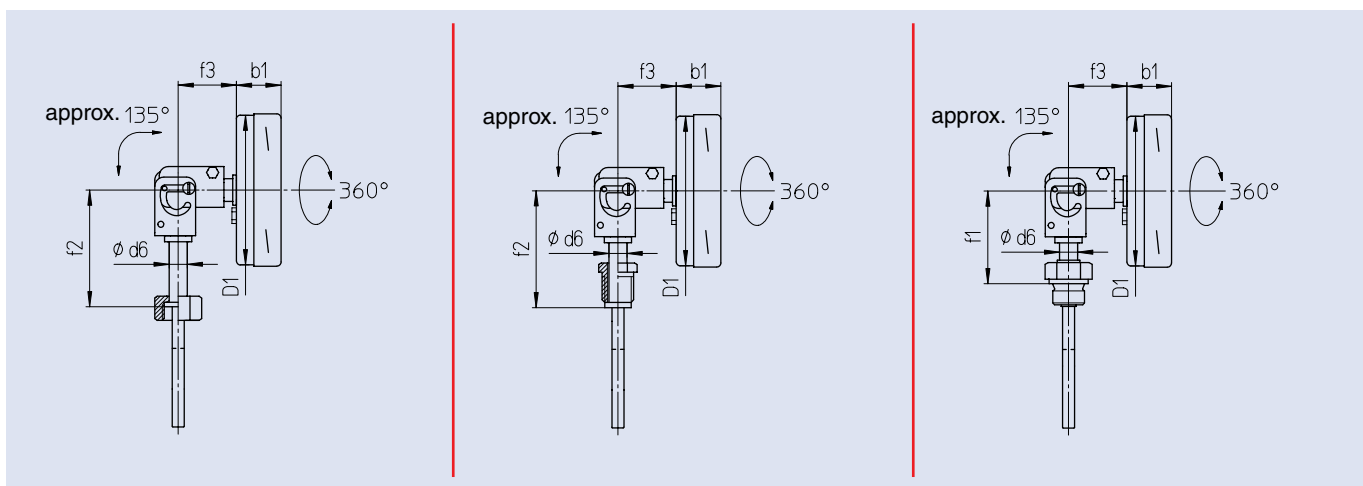
#### Stem model B1 (also B5)



#### Stem model B3 (also B6)

#### Stem model B4

#### Stem model B4.1



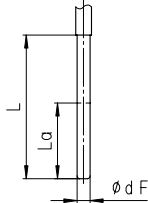
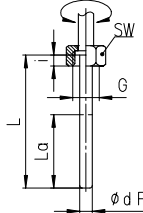
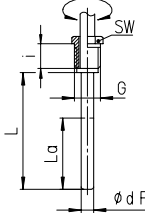
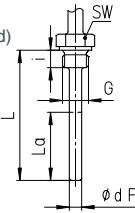
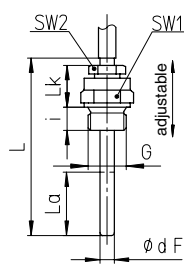
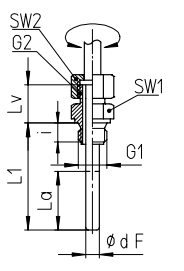
### Dimensional Data (mm) and Weights (kg)

| NCS | b1 | D   | D1  | d6 | d7 | f1 <sup>1)</sup> | f2 <sup>1)</sup> | f3 | approx. weight <sup>2)</sup><br>TBiGelCh |
|-----|----|-----|-----|----|----|------------------|------------------|----|--|
| 63  | 26 | 64  | 62  | 12 | 14 | 63               | 80               | 40 | 0.29                                     |
| 100 | 28 | 101 | 99  | 12 | 14 | 63               | 80               | 40 | 0.42                                     |
| 160 | 27 | 161 | 159 | 12 | 14 | 63               | 80               | 40 | 0.76                                     |

<sup>1)</sup> Temperature ranges  $\geq 400$  °C: extended dimension for small stem lengths, see T08-000-031

<sup>2)</sup> The data are examples and relate to the version with stem B1, Ø 8 mm, length 100 mm.

# Stem Models

| Stem Models  |  | Without screw fitting, plain stem  |                             |   |  |   |               |            |            |          |           |
|--|--|--|-----------------------------|---|--|---|---------------|------------|------------|----------|-----------|
| <b>Process connection:</b>   | <b>Without screw fitting, plain stem</b>                       |  |                             |   |  |   |               |            |            |          |           |
| <b>Stem model:</b>   | <b>B1</b>  |  |                             |   |  |   |               |            |            |          |           |
| <b>Form acc. to DIN EN 13 190:</b>   | Form 1   |  |                             |   |  |   |               |            |            |          |           |
| <b>Stem material:</b>  | 1.4571   |  |                             |   |  |   |               |            |            |          |           |
| <b>Stem Ø dF:</b>  | 6 or 8 mm  |  |                             |   |  |   |               |            |            |          |           |
| <b>Order length:</b>   | L  |  |                             |   |  |   |               |            |            |          |           |
| <b>Suitable thermowell models:</b><br>(data sheet)   | SK1 (8.8140), SK2 (8.8141)<br>SK3.B (8.8150), SK4.B (8.8151)   |  |                             |   |  |   |               |            |            |          |           |
|  |  |     |                             |   |  |   |               |            |            |          |           |
| <b>Process connection:</b>   | <b>Union nut</b>   | <b>Male thread, turnable</b>   |                             |   | <b>Male thread, rigid</b>                                      |   |               |            |            |          |           |
| <b>Stem model:</b>   | <b>B3</b>  | <b>B4</b>  |                             |   | <b>B4.1</b>  |   |               |            |            |          |           |
| <b>Form acc. to DIN EN 13 190:</b>   | Form 5   | Form 4   |                             |   | Form 6 (cylindrical thread)<br>Form 7 (conical thread)         |   |               |            |            |          |           |
| <b>Stem material:</b>  | 1.4571   | 1.4571   |                             |   | 1.4571   |   |               |            |            |          |           |
| <b>Stem Ø dF:</b>  | 6 or 8 mm  | 6 or 8 mm  |                             |   | 6 or 8 mm  |   |               |            |            |          |           |
| <b>Screw fitting material:</b>   | 1.4571   | 1.4571   |                             |   | 1.4571   |   |               |            |            |          |           |
| <b>Order length:</b>   | L  | L  |                             |   | L  |   |               |            |            |          |           |
| <b>Suitable thermowell models:</b><br>(data sheet)   | SF4.1 (8.8111), SF4.1F (8.8113)<br>SF8 (8.8130), SF9 (8.8131)  | SF4 (8.8110), SF4F (8.8112)<br>SF5 (8.8120), SF6, SF7 (8.8121)                       |                             |   | SF4 (8.8110), SF4F (8.8112)<br>SF5 (8.8120), SF6, SF7 (8.8121) |   |               |            |            |          |           |
|  |  |     |                             |  |  |    |               |            |            |          |           |
| <b>Thread (dimensional data in mm):</b>  | <b>G</b>   | <b>SW</b>  | <b>i</b>                    | <b>G</b>  | <b>SW</b>  | <b>i</b>  | <b>G</b>      | <b>SW</b>  | <b>i</b>   |          |           |
|  | G 1/2  | 27   | 10                          | G 1/2 B   | 22   | 20  | G 1/2 B       | 27         | 14         |          |           |
|  | G 3/4  | 32   | 12                          | G 3/4 B   | 27   | 23  | G 3/4 B       | 32         | 16         |          |           |
|  | M20x1.5  | 27   | 10                          | M18x1.5   | 22   | 14  | 1/2" NPT      | 27         | 19         |          |           |
|  | M24x1.5  | 32   | 12                          | M20x1.5   | 22   | 20  | 3/4" NPT      | 27         | 19         |          |           |
|  | M27x2  | 32   | 12                          | <b>Thermowell required!</b>   |  |   | M18x1.5       | 24         | 14         |          |           |
|  |  |  |                             |   |  |   | M20x1.5       | 27         | 14         |          |           |
| <b>Process connection:</b>   | <b>Male thread/compression fitting</b>                         |  |                             |   | <b>Male thread, turnable/double male adapter</b>               |   |               |            |            |          |           |
| <b>Stem model:</b>   | <b>B5</b>  |  |                             |   | <b>B6</b>  |   |               |            |            |          |           |
|  | (B1 with compression fitting)                                  |  |                             |   | (B3 with double male adapter)                                  |   |               |            |            |          |           |
| <b>Form acc. to DIN EN 13 190:</b>   | Form 2 (cylindrical thread)<br>Form 3 (conical thread)         |  |                             |   | —  |   |               |            |            |          |           |
| <b>Stem material:</b>  | 1.4571   |  |                             |   | 1.4571   |   |               |            |            |          |           |
| <b>Stem Ø dF:</b>  | 6 or 8 mm  |  |                             |   | 6 or 8 mm  |   |               |            |            |          |           |
| <b>Screw fitting material:</b>   | 1.4571   |  |                             |   | 1.4571   |   |               |            |            |          |           |
| <b>Order length:</b>   | L  |  |                             |   | L1   |   |               |            |            |          |           |
| <b>Suitable thermowell models:</b><br>(data sheet)   | SF4 (8.8110), SF4F (8.8112)<br>SF5 (8.8120), SF6, SF7 (8.8121) |  |                             |   | SF4 (8.8110), SF4F (8.8112)<br>SF5 (8.8120), SF6, SF7 (8.8121) |   |               |            |            |          |           |
|  |  |  |                             |   |  |  |               |            |            |          |           |
| <b>Thread (dimensional data in mm):</b>  | <b>G</b>   | <b>SW1</b>   | <b>SW2</b>                  | <b>i</b>  | <b>Lk</b>  | <b>G1</b>   | <b>G2</b>     | <b>SW1</b> | <b>SW2</b> | <b>i</b> | <b>Lv</b> |
|  | G 1/2 B  | 27   | 22                          | 14  | 42   | G 1/2 B   | G 1/2 B       | 27         | 27         | 14       | 28        |
|  | G 3/4 B  | 32   | 22                          | 16  | 42   | G 3/4 B   | G 1/2 B       | 32         | 27         | 16       | 28        |
|  | 1/2" NPT   | 27   | 22                          | 19  | 42   | 1/2" NPT  | G 1/2 B       | 27         | 27         | 19       | 28        |
|  | 3/4" NPT   | 27   | 22                          | 19  | 42   | 3/4" NPT  | G 1/2 B       | 27         | 27         | 19       | 28        |
|  | M20x1.5  | 27   | 22                          | 14  | 42   | M20x1.5   | M20x1.5       | 27         | 27         | 14       | 28        |
|  |  |  |                             |   |  | M24x1.5   | M20x1.5       | 32         | 27         | 14       | 28        |
|  |  |  |                             |   |  | M27x2   | M20x1.5       | 32         | 27         | 16       | 28        |
| <b>Minimum Stem Length and Active Length (mm)</b>  |  |  |                             |   |  |   |               |            |            |          |           |
|  |  |  | <b>Stem Ø dF:</b>           |   |  |   |               |            |            |          |           |
|  |  |  | <b>6</b>                    |   | <b>8</b>   |   |               |            |            |          |           |
|  |  |  | <b>Span ΔT<sup>1)</sup></b> |   |  |   |               |            |            |          |           |
| <b>Stem model:</b>   | <b>Length:</b>   | <b>Thread:</b>   | <b>≥ 100K</b>               | <b>= 80 K</b>   | <b>= 60 K</b>  | <b>≥ 80 K</b>   | <b>= 60 K</b> |            |            |          |           |
| <b>all models</b>  | L <sub>a</sub>   | all standard threads   | 40                          | 60  | 70   | 40  | 60            |            |            |          |           |
| <b>B1 / B4</b>   | L <sub>min</sub>   | all standard threads   | 45                          | 65  | 75   | 45  | 65            |            |            |          |           |
| <b>B3</b>  | L <sub>min</sub>   | all standard threads   | 52                          | 72  | 82   | 52  | 72            |            |            |          |           |
| <b>B4.1</b>  | L <sub>min</sub>   | all standard threads   | 60                          | 80  | 90   | 60  | 80            |            |            |          |           |
| <b>B5</b>  | L <sub>min</sub>   | all standard threads   | 95                          | 115   | 125  | 95  | 115           |            |            |          |           |
| <b>B6</b>  | L <sub>1min</sub>  | all standard threads   | 60                          | 80  | 90   | 60  | 80            |            |            |          |           |
| <b>others</b>  |  |  | upon request                |   |  | upon request  |               |            |            |          |           |
| <p><b>The minimum length L<sub>min</sub>/L<sub>1min</sub> is the smallest feasible stem length.</b><br/>Important: Please note the technical information sheet T08-000-031 on the metrologically optimal stem length.</p> <p><b>The active length L<sub>a</sub> is the temperature-sensitive part of the stem.</b></p> |  |  |                             |   |  |   |               |            |            |          |           |

<sup>1)</sup> The temperature difference (span) ΔT = 60 K corresponds e.g. to the temperature range 0–60 °C, but also to –20/+40 °C, see table page 4

## Ordering Information with Temperature and Measuring Ranges, Options

| Basic Model: Bimetal Thermometer Every Angle  |  | TBiGelCh  |
|---|--|---|
| <b>Case filling:</b>                          | without  | without code letters                            |
| <b>Nominal case size:</b>                     | case Ø 63, 100, 160 mm (2½, 4, 6")   | <b>63, 100, 160</b>                             |
| <b>Stem position/<br/>case configuration:</b> | centre back position, with pivot (every angle)   | without code letters                            |
| <b>Temperature ranges:</b>                    | scale: $\Delta T$ (K):   |   |
|   | 0 – 60 °C 60   |   |
|   | 0 – 80 °C 80   |   |
|   | 0 – 100 °C 100   | e.g. <b>0–100 °C</b>                            |
|   | 0 – 120 °C 120   |   |
|   | 0 – 160 °C 160   |   |
|   | 0 – 200 °C 200   |   |
|   | 0 – 250 °C 250   |   |
|   | 0 – 300 °C 300   |   |
|   | 0 – 400 °C 400   |   |
|   | 0 – 500 °C 500   |   |
|   | 0 – 600 °C 600   |   |
|   | –50 / +50 °C 100   |   |
|   | –40 / +40 °C 80  |   |
|   | –40 / +60 °C 100   |   |
|   | –30 / +50 °C 80  | e.g. <b>–30/+50 °C</b>                          |
|   | –30 / +70 °C 100   |   |
|   | –20 / +40 °C 60  |   |
|   | –20 / +60 °C 80  |   |
|   | –20 / +80 °C 100   |   |
|   | 50 – 300 °C 250  |   |
| <b>Stem:</b>                                  | without screw fitting, plain stem  | <b>B1</b>                                       |
|   | union nut  | <b>B3</b>                                       |
|   | male thread, turnable  | <b>B4</b>                                       |
|   | male thread, rigid   | <b>B4.1</b>                                     |
|   | male thread/compression fitting  | <b>B5</b>                                       |
|   | male thread, turnable/double male adapter  | <b>B6</b>                                       |
| <b>Stem Ø dF:</b>                             | 6 or 8 mm  | <b>dF 6, 8</b>                                  |
| <b>Stem length:</b>                           | L or L1 in mm  | e.g. <b>L = 100 mm</b>                          |
| <b>Process connection:</b>                    | see page 3   | e.g. <b>G½B</b>                                 |
| <b>Options:</b>                               | red mark on the dial<br>plastic clip red or green, external at the bayonet ring for NCS 100, 160<br>window laminated safety glass<br>acrylic glass (PMMA)<br>polycarbonate (PC)<br>case polished<br>bayonet ring polished<br>stem Ø dF 10 mm<br>stem length >400 mm, max. 800 mm<br>measuring point stainless steel plate 12 x 55 mm (0.47 x 2.17") with wire mounting<br>marking or sticker upon the case | <i>(order at the moment still as cleartext)</i> |

**Example:**

**TBiGelCh 80, 0–100 °C, B3, dF 8, L = 140 mm, G½**

**Special Versions:** Please describe your requirements in cleartext!